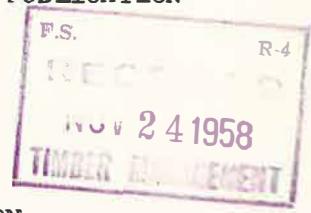


NOT FOR PUBLICATION



INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION
FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE

Ogden, Utah

Reed W. Bailey, Director

I
Control
Insect
✓ Sawtooth

Appraisal Survey
Mountain Pine Beetle Infestation
Sawtooth National Forest
Idaho
September 1958

Action	Initial
Moncrief	SM
Frykman	BB
Graeterbach	TH
Conrod	TH
Moran	W
Lowe	DP
Hortenra	TH
Melvin	CM
Payne	
TM Clerk	

By

W. E. Cole
Entomologist

6 copies sent Sawtooth
with memo of 11/24/58

Prepared by

Division of Forest Insect Research
Boise Research Center
Boise, Idaho

TM FILE COPY

APPRAISAL SURVEY
MOUNTAIN PINE BEETLE INFESTATION
SAWTOOTH NATIONAL FOREST
IDAHO

September 1958

By

W. E. Cole
Entomologist

The mountain pine beetle^{1/} has been active in lodgepole pine for the past few years within the drainages of the Big and Little Smokey Creeks and South Fork of the Boise River on the Sawtooth National Forest, Idaho. In 1956 maintenance-type control work was done on some 400 lodgepole pine trees within Little Smokey Creek.

In 1957 a decided increase in number of dying lodgepole pines was noted and an appraisal-type survey was initiated. Due to lack of time and manpower only a 1.25 percent cruise was made of the more critical areas of infestation. This survey revealed an increase of 2.62 newly attacked trees to 1 "red top" or tree attacked the previous year. An estimate of 2.27 + 0.50 newly attacked (N.A.) trees per acre, or a total of 2158 + 531 N.A. trees was calculated from the survey. Control was recommended and accomplished in the spring of 1958. A total of 2781 trees were sprayed during this project.

The 1958 survey was done to evaluate the effectiveness of spraying and to determine the location and intensity of any new infestations.

SURVEY METHODS

A systematic ground cruise was employed within the control project areas and the larger new infestations, and a reconnaissance survey in the rest of the areas discussed.

This year the 5 percent survey utilized the line-plot method within the areas that were systematically cruised. A 1/5-acre circular plot was established every 2 chains along parallel lines run in a cardinal direction 20 chains apart. The surveyor ran these lines by hand compass and recorded the cruise data. Information recorded included the number of newly attacked trees, trees attacked in 1957, trees killed prior to 1957, the d.b.h. of all newly attacked trees and the number of all green trees over 6" d.b.h. on every tenth plot.

^{1/} Dendroctonus monticolae (Hopk.)

SURVEY DATA BY UNITS

Unit A. Big - Little Smokey Creeks -- 2,132 acres, 699 ± 170 infested trees (systematic survey) and 7,000 acres, approximately 280 infested trees (scouted).

This unit, except for the 7,000 acres scouted, includes the areas of the 1958 control project. The timber is mixed, Douglas-fir and lodgepole pine, with the main bodies of the lodgepole pine timber located along the creek bottoms.

On an average there are 0.33 ± 0.07 newly infested trees per acre within the cruised areas. There was a reduction to 0.26:1 of newly attacked trees to last year's attacks, whereas the 1957 survey showed a 3.78:1 increase. These figures reflect the effect of the control project.

The scouting or reconnaissance survey revealed another 280 newly attacked trees within approximately 7,000 acres, or very roughly 0.04 N.A./acre.

There is an average of 5.89 attacks per 1/2-square foot of bark per attacked tree, with an average diameter of 11.17 inches. Even though there appears to be a decline in the total number of newly infested trees, the number of attacks per 1/2-square foot of bark indicates a potential build-up.

Unit B. Warm Spring Creek -- 4,086 acres, 239 ± 118 infested trees (systematic survey); 3,000 acres, approximately 100 infested trees (scouted).

This unit includes the upper end of Warm Spring Creek between Dollarhide Summit and Thompson Creek, encompassing the side drainages where lodgepole pine-type was found. The 5 percent cruise covered only the Dollarhide portion of the area while Castle, Placer, South Fork, and Middle Fork Warm Spring Creeks were scouted.

The systematic survey revealed an average of 0.06 ± 0.03 newly infested trees per acre. No trend ratio was obtained within this unit due to a misunderstanding in collecting the data. However, there appears to be an increase evidenced by a distinct grouping of attacked trees rather than general distribution of newly attacked trees.

The beetle appears as potentially serious in the Warm Spring Unit as in the Big Smokey Unit. The average number of attacks per 1/2-square foot of bark was 8.06 and the attacked tree averaged 11.83 inches d.b.h.

The scouting-type survey revealed approximately 100 trees within about 3,000 acres, or roughly 0.03 N.A. trees/acre.

Unit C. South Fork Boise River -- 4,000 acres, 18 infested trees (scouted).

This unit encompasses the upper end of the South Fork Boise River. It warrants only a mention that no significant loss of lodgepole pine from mountain pine beetle attacks was found.

Unit D. West Pass Creek -- 1,300 acres, 350 infested trees (scouted).

This area contains one concentration of approximately 200 newly attacked trees, with the rest scattered throughout approximately 1,300 acres. A rough estimate of 0.29 N.A./acre was obtained by scouting the area.

DISCUSSION

The mountain pine beetle infestation has been reduced considerably within the Big - Little Smokey drainages. However, a threat of continuing beetle activity exists within the nearby Warm Spring drainage and an isolated infestation discovered and scouted within West Pass Creek near Bowery Flats. This infestation is concentrated and could act as a nucleus for a possible flare-up within the lodgepole pine type along the Salmon River.

Table 1 shows the overall survey estimates by units surveyed and by project total. Approximately $2,000 \pm 300$ infested trees exist within these areas. As can be noted in table 2, the beetle potential remains rather high in that overall average of attacks is 6.55 per 1/2-square foot, and the greatest number of attacks per 1/2-square foot falls within the 14-inch diameter class. However, the greatest loss of trees is occurring in the 10-inch diameter class with the average attacked tree being 11.22 inches d.b.h. (table 3).

Table 1. Estimate of size and intensity of the mountain pine infestation
Sawtooth National Forest, 1958

Unit	Survey intensity	Acres	Estimated trees/acre	Estimated trees/unit	Coefficient variation	Buildup ratio
A. Smokey Cr.	5% Scouted	2,132 7,000	0.33 \pm 0.07 0.04	699 \pm 170 280	24.32 ---	0.26:1 ---
B. Warm Spring	5% Scouted	4,086 3,000	0.06 \pm 0.03 0.03	239 \pm 118 100	49.37 ---	---
C. So.Fk.Boise	Scouted	4,000	---	18	---	---
D. W.Pass Cr.	Scouted	1,300	0.29	350	---	---
Total	5% Scouted ¹	6,218 11,300	0.22 \pm 0.05 0.06	1,380 \pm 314 730	22.75 ---	---

1/ Omits unit C.

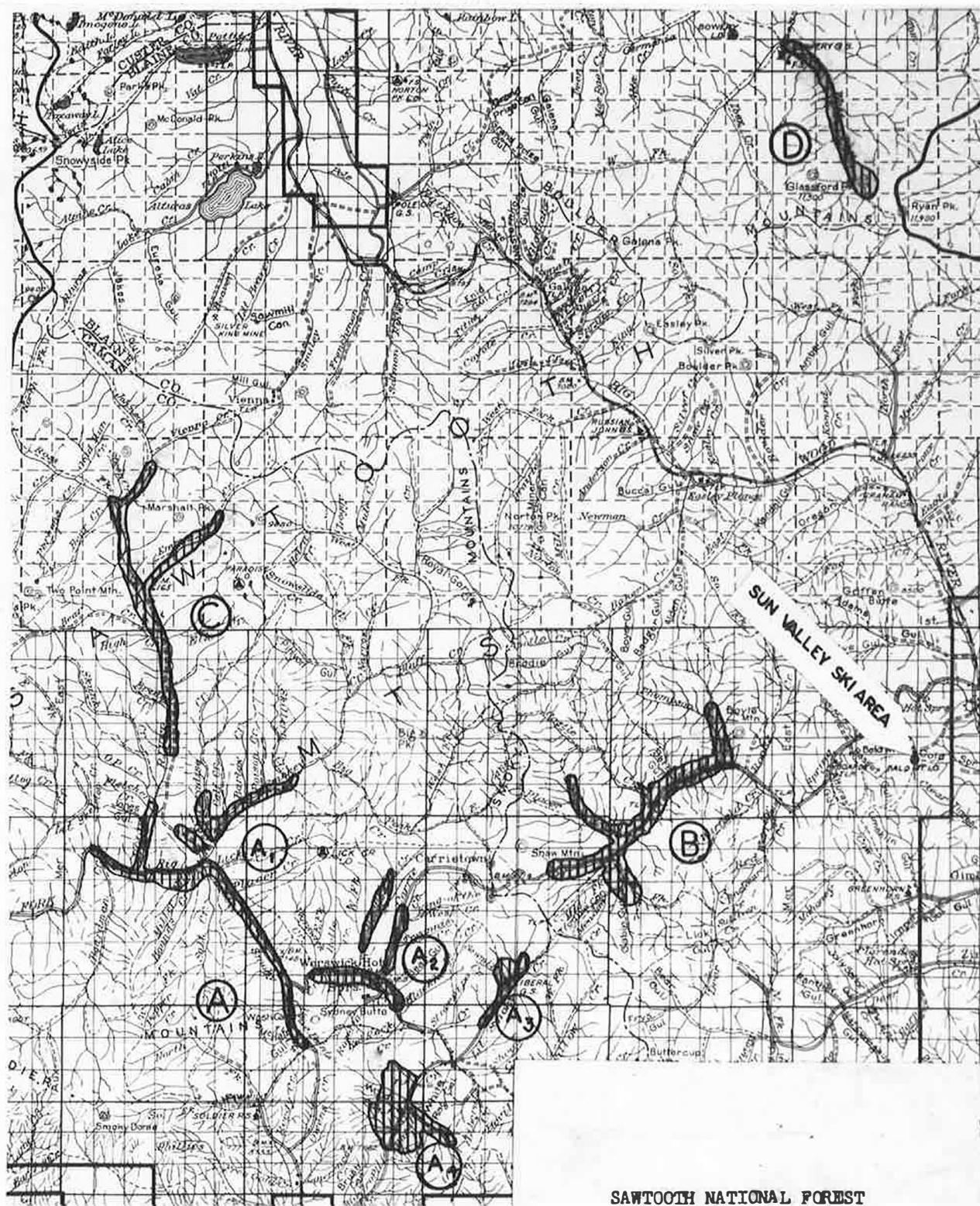
Table 2. Summary of number of attacks per 1/2-square foot of bark
Sawtooth National Forest, 1958

Unit	Overall average	Diameter Class							
		6	8	10	12	14	16	18	20
Big Smokey	5.89	3.13	4.72	5.33	6.11	9.50	8.40	8.25	6.00
Warm Sprg.	8.08	2.00	4.82	6.33	10.10	19.77	7.67	10.00	---
All units	6.55	3.00	4.76	5.61	7.64	12.89	8.23	8.83	6.00

Table 3. Summary of attacked trees by diameter class (in percent)
Sawtooth National Forest, 1958

Unit	Overall average	Diameter Class							
		6	8	10	12	14	16	18	20
Big Smokey	11.17"	8.99	20.22	<u>26.97</u>	20.22	6.74	11.24	4.50	1.12
Warm Sprg.	11.83"	2.56	<u>28.21</u>	23.08	25.64	7.69	7.69	5.13	--
All units	11.22"	7.03	22.66	<u>25.78</u>	21.87	7.03	10.16	4.69	0.78

The watershed and recreation values remain the primary factors affected by this infestation. Both Warm Spring and Big Smokey Creeks attract heavy activity by sportsmen and influence the attractiveness of areas around Sun Valley, Idaho



SAWTOOTH NATIONAL FOREST